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PROJECT MANAGEMENT OF ARMY AIRCRAFT SURVIVABILITY EQUIPMENT

STUDY PROJECT REPORT
PMC 76-2

William A. Allen
MAJ USA

FORT BELVOIR, VIRGINIA 22060

DEFENSE SYSTEMS MANAGEMENT COLLEGE

STUDY TITLE: PROJECT MANAGEMENT OF ARMY AIRCRAFT SURVIVABILITY EQUIPMENT

STUDY PROJECT GOALS:

To determine the mission of the Army Aircraft Survivability Equipment Project Manager's Office, evaluate the organization in view of its mission, and analyze the management concepts, management techniques and their effectiveness.

STUDY REPORT ABSTRACT:

Efforts by the U.S. Army to improve the survivability characteristics of its combat aircraft resulted in a proliferation of modifications ranging from simple airframe changes to the development of extremely complex electronic countermeasures. To effect centralized management of the development, procurement, and deployment of survivability enhancing equipment, it was necessary to establish the Aircraft Survivability Project Manager's Office within the U.S. Army Aviation Systems Command. This report addresses the policies, regulations, missions, responsibilities, and management concepts employed by the Project Manager and supporting organizations in the realization of this goal.

Key Words: Aircraft, Survivability, Survivability Equipment, Management, Regulations, Orgnizatjions, Charters, U.S. Army.

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PROJECT MANAGEMENT OF ARMY AIRCRAFT SURVIVABILITY EQUIPMENT

Study Project Report

Individual Study Program

Defense Systems Management College

Program Management Course

Class 76-2

by

William A. Allen
MAJ USA

November 1976

Study Project Advisor
LCDR Jerry Chasko

EXECUTIVE SUMMARY

The losses of U.S military combat aircraft in Southeast Asia and the losses of comparable aircraft in the Mideast conflict pointed out many design deficiencies in our combat aircraft. Since it was impractical to replace the existing fleet of aircraft with those of better design, the Army, Navy, and Air Force initiated massive programs to correct the deficiencies. In the Army this effort resulted in a proliferation of modifications which ranged from simple airframe changes to complex electronic countermeasures. To provide centralized management of the research and development, procurement, and deployment, it was necessary to establish an Aircraft Survivability Equipment Product Management Office in the U.S. Army Aviation Systems Command. Increased demands and increased responsibility resulted in the upgrading of this office to the status of Project Management. The centralized management imposed by this office is the topic of discussion in this report. The importance of a strong Project Manager's Charter, and clear policies and regulations, which emphasis authority and responsibility is also stressed. While the PMO cited in this report manages a large number of relatively small projects, it illustrates that the application of skills and the development of documentation is not unlike those used and developed for a single large program.

ACKNOWLEDGEMENTS

To the Project Manager, Aircraft Survivability Equipment, U.S. Army Aviation Systems Command, and his staff, I express my grateful appreciation for their support and constructive comments on the preparation of this report.

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SECTION I

Introduction

The Vietnam conflict was a costly encounter for U.S. Army Aviation units. The U.S. Army lost many aircraft and crews before it was realized that many of its aircraft had been designed and produced to specifications which failed to give proper emphasis to survivability in a hostile environment. Losses caused by these encounters were costly in personnel, material and, of course, had a degrading effect on operational capabilities. The most disturbing factor was that most of the combat losses were from small arms fire rather than the more sophisticated threats expected in a European confrontation. If the Army's aircraft could not survive a small arms threat in a limited conflict, how could they survive the threat posed by the Soviet block countries?

Early attempts to improve aircraft survivability were crude, but effective against the small arms threat. They included such things as flak curtains around critical components and simply flying about the range of small arms. Then in the late sixties, North Vietnam introduced a small, man-portable, shoulder fired, heat seeking missile, to the battlefield. Now, the Army aviation units had a "new ball game". The Army initiated a crash program to develop a counter to the new threat.

The result was "add-on" kits which hid the hot exhaust pipe of the aircraft's engine from the heat seeking missile.

Almost simultaneously with the introduction of the heat seeking missile was the introduction of a mobile radar directed anti-aircraft gun. The Army's low, slow flying aircraft made easy targets for this new threat. Again, another crash program and another "quick-fix". By this time, there was a proliferation of add-on kits of every kind, and a multitude of small research and development projects being conducted in various Army laboratories throughout the United States to improve the survivability of Army aircraft. These efforts began the evolution of aircraft survivability as a design discipline in the U.S. Army. The Army laboratories did their jobs well. In fact, so well, that it became necessary to establish a separate office to manage their activities.

In April 1973, the Commanding General, Army Materiel Command approved a charter for the Product Manager, Aircraft Survivability Equipment. The mission of the Product Manager was to manage the development, procurement, and deployment of the Army's aircraft survivability equipment.

In January 1976, this position was elevated to Project Manager by order of the Secretary of the Army. A copy of the Project Manager's charter is presented as Appendix A.

The purpose of this report is to provide the reader with an understanding of the management policies, regulations, and concepts employed by the U.S. Army during the development of its aircraft survivability related equipment.

Section II of this report addresses authority, missions, policies, and regulations of the various organizations throughout the Army relating to their roles in the centralized management concept. Section III addresses project selection, funding, procurement, deployment actions, PMO manning, and Tri-service interface. Discussions addressing PMO manpower levels are limited to resources currently available-- not a desired mix.

Before continuing with the discussion on management of the Army's aircraft survivability equipment, the following definitions[1] are provided to establish an understanding of aircraft survivability:

SURVIVABILITY - The capability of an aircraft to avoid and/or withstand a man-made hostile environment without sustaining an impairment of its ability to accomplish its designated mission.

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[1] These definitions are from JTCG/AS Report Number JTCG/AS-74-D-002, "Proposed MIL-STD-XXX, Aircraft Nonnuclear Survivability/Vulnerability Terms".

VULNERABILITY - The characteristics of a system that cause it to suffer a finite level of degradation in performing its mission as a result of having been subjected to a certain level of threat mechanism in a man-made hostile environment.

THREATS - Those elements of a man-made environment designed to reduce the ability of an aircraft to perform necessary functions by inflicting damaging effects, forcing undesirable maneuvers or degrading systems effectiveness.

THREAT MECHANISM - Mechanisms embodied in or employed as a threat, which are designed to damage (i.e. to degrade the functioning of or to destroy) an aircraft component or the aircraft itself.

SURVIVABILITY ENHANCEMENT - The use of any tactic, technique or survivability equipment, or combination of techniques that increases the probability of survival of an aircraft when operating in a man-made hostile environment.

PASSIVE COUNTERMEASURES - Those techniques related to reduction of detection which differ from active countermeasures in the sense that no counter-electro-magnetic spectrum is generated for defense.

VULNERABILITY REDUCTION - Any technique that enhances the aircraft design in a manner that reduces the aircraft's susceptibility to damage when subjected to threat mechanisms.

HARDENING - That type of vulnerability reduction effected by interposing less essential components between critical components and the damage mechanism, by eliminating critical components, or by the use of materials having improved characteristics.

THREAT NEGATION - To render a threat ineffective through the use of countermeasures, tactics, or suppressive fire.

SURVIVABILITY ENHANCEMENT TRADE-OFFS - The process of examining and quantifying both the survival benefits and the penalties associated with alternative survivability enhancement techniques of aircraft and subsystems. The objective of this trade-off process is to derive the insights necessary to select the optimal configuration and utilization for defined mission roles.

SUSCEPTIBILITY - The combined characteristics of all the factors that determine the probability of hit on an aircraft component, subsystem, or system by a given threat mechanism.

AIRCRAFT PROBABILITY OF SURVIVAL - The probability that an aircraft will survive a defined damage level in specified threat engagements.

AIRCRAFT PROBABILITY OF KILL - The probability that an aircraft will not survive a defined level in specified threat engagements.

AIRCRAFT SURVIVABILITY ASSESSMENT - Systematic description, delineation, quantifications, and statistical characterization of the survivability of an aircraft in encounters with hostile defenses.

AIRCRAFT VULNERABILITY ASSESSMENT - Systematic description, delineation, and quantification of the vulnerability of an aircraft when subjected by threat mechanisms.

SECTION II

U.S. Army Survivability Policies, Regulations, and Responsibilities

U.S. ARMY DEVELOPMENT AND READINESS COMMAND (DARCOM) - Regulation 70-3, "Survivability," 17 February 1976, prescribes policy, responsibilities, and procedures for improving the survivability of DARCOM items and systems. The objective of the DARCOM Survivability Program is to:

1. Allow forces to avoid detection, acquisition, and attacks by hostile forces during all phases of combat operations.

2. Permit absorption of unavoidable attacks with a minimum loss of human resources while maintaining sufficient combat power and efficiency to insure continued participation in combat.

3. Facilitate rapid battlefield recovery and recuperation with assets and skills available in the forward areas and common to organizational and direct support maintenance units.

4. Enhance the repair of low density-high cost or high density items in theaters of operation.

The Deputy Commanding General for Materiel Development (DCGMD) has primary responsibility for survivability within DARCOM. The U.S. Army Materiel Systems Analysis Activity (AMSAA), Aberdeen Proving Ground, Maryland, is designated as the Lead Activity within DARCOM. In this role the Director, AMSAA, is to:

1. Provide the central expertise for directing the DARCOM survivability program and for issuing guidance. In this regard, he will maintain, improve, and disseminate methodologies needed to carry out survivability studies (including methodologies developed in Joint Service programs), and to insure that data having application to a number of commodity classes are exchanged within the DARCOM community.

2. Review Letters of Agreement (LOAs), Required Operational Characteristics (ROCs), Development Plans (DPs) and when requested, Engineering Change Proposals and Product Improvement Proposals (PIPs) for DARCOM's major and designated non-major systems to determine that survivability aspects are quantified, if possible, in these documents. Further, he will insure that survivability is balanced properly in trade-off studies, and that

adequate baseline data are obtained in test programs to permit assessing survivability aspects in a total evaluation of major and non-major systems.

3. Develop and maintain the capability to perform independent studies of survivability concepts and options, as requested or as associated with the AMSAA mission for low cost, quick response solutions, and assist, through coordination and joint studies, in developing a similar capability at each development center.

4. Continually assess the survivability efforts of DARCOM, and periodically make recommendations to the DCGMD on areas needing increased emphasis and allocation of funds.

5. Through coordination with TRADOC, identify tactical variations in deployment and use of materiel, evaluate potential survivability improvements in fielded and developmental materiel, and quantify the survivability benefits when possible.

Commanders of Research and Development Commands, Materiel Readiness Commands and Project/Product Managers responsibilities are defined as follows:

1. Include appropriate survivability requirements in each LOA, ROC, DP, development contract, and PIP.

2. Develop and maintain a capability to conduct feasibility studies and experiments of potential survivability modifications to fielded materiel, as well as materiel undergoing development. (Note: This applies only to the command or center, not normally to a PM.)

3. Determine the impact of proposed engineering changes (to enhance survivability) on program costs, unit production cost, reliability, schedules, performance, producibility, technical risk, and maintainability. The purpose of these assessments is to insure that survivability improvement is accomplished without an inordinate impact on other essential characteristics, or program cost and schedules.

4. Include survivability testing and evaluation in the developmental test process.

5. Inform the Director, AMSAA of any specific survivability progress procedures, or solutions, which have broader application to DARCOM materiel.

6. Inform the Director, AMSAA of any potential survivability improvements which involve TRADOC responsibilities for doctrine, tactics, and training.

There are several other DARCOM organizations with assigned collateral survivability responsibilities which will continue to be responsible for particular areas. The major organizationa are:

1. PM, Aircraft Survivability Equipment (AVSCOM).

2. The Vulnerability Assessment Teams in the several research and development commands.

3. Ballistic Research Laboratory-Nonnuclear Vulnerability.

4. Mobility Equipment Research and Development Command-Camouflage and Countermine.

5. Harry Diamond Laboratory-Nuclear Vulnerability.

6. U.S. Army Electronics Command-Electronic Warfare.

OTHER ARMY SURVIVABILITY REGULATIONS - AMC Regulation 70-53, "Nonnuclear Vulnerability and Vulnerability Reduction," 16 June 1971, set forth the policies and responsibilities for the development, integration and application of nonnuclear vulnerability and vulnerability reduction efforts within the

U.S. Army Development and Research Command (DARCOM) and is still in effect.

AVSCOM Regulation 70-C, "Vulnerability Analysis and Investigations," 12 November 1975, is primarily concerned with procedures for conducting vulnerability analyses on aircraft.

PROJECT MANAGER FOR AIRCRAFT SURVIVABILITY EQUIPMENT - DARCOM has a designated Project Manager for Aircraft Survivability Equipment (ASE), located at the U.S. Army Aviation Systems Command (AVSCOM). The current Project Manager Charter was approved by the Secretary of the Army on 8 January 1976. The mission is as follows:

The Project Manager is responsible for the project management of Aircraft Survivability Equipment, consisting of protection against infra-red, radar, and optically guided and/or directed weapons systems, in accordance with DoD Directive 5000.1, AR 1000.1, AR 70-17, AMCR 11-16, and other pertinent regulations. Program objectives are to provide: self protection for the current Army aircraft fleet on the modern battlefield; contigency protection equipment and plans as required; vulnerability analysis and development of survivability techniques and equipment for aircraft Project, Product and Weapon System Managers; and a viable technical data base within DARCOM to interface with future aircraft development programs.

The ASE Project Manager is responsible for the centralized management of Aircraft Survivability within the Army.

The responsibilities of participating Army organizations in supporting the ASE Project Manager are as follows:

1. U.S. Army Aviation Systems Command:
   Provide administrative, ADP, cost analysis, logistical, procurement, maintenance, produce assurance, distribution, engineering, and research and development support for the Project Manager as prescribed by DARCOM and AVSCOM regulations.

2. U.S. Army Training and Doctrine Command:
   a. Participate in: program reviews; preparation, revision, and update of development plan; development of training requirements; Requirements Control Boards; development of training device requirements; operational tests; guidance regarding changes to materiel development trade-offs; and request for proposal (RFP) reviews involving advanced development (AD), engineering development (ED), and producibility, engineering and planning (PEP) contracts.

b. Develop: deployment doctrine, employment concepts, Field Manuals (FM), Basis of Issue (BOI), Cost and Operational Effectiveness Analysis (COEA), and Tables of Organization and Equipment (TOE).

c. Perform operator and maintenance personnel training.

3. U.S. Army Electronics Command:
Provide support in all functional areas in accordance with provisions of the Joint Responsibility Agreement between the Project Manager ASE and USA ECOM.

4. U.S. Army Missile Command:
Provide required ASE functional support in accordance with DA and DARCOM regulations, policies, and procedures.

5. U.S. Army Armament Command:
Design, fabrication, evaluation, and delivery of associated ASE devices as required, and development, system integration, acquisition, product assurance, and support for ASE as required.

6. U.S. Army Test and Evaluation Command:
Conduct governmental development tests deemed necessary by the Project Manager, provide technical evaluation of all development tests, prepare detailed test plans as required, and assist and advise in preparation of development test requirements, methods and procedures for other than governmental testing.

7. DARCOM Laboratories, Agencies and Subordinate Activities:
Provide support within assigned mission areas as required by DARCOM regulations.

8. U.S. Army Operational Test and Evaluation Agency:
Program and conduct operational test and evaluation of assigned project systems.

9. U.S. Army Logistics Evaluation Agency:
Participate in review of RDTE efforts for logistical implications and the adequacy of integrated logistic support planning.

10. U.S. Army Materiel Systems Analysis Activity:
    a. Prepare the Independent Evaluation Plan, design the necessary development tests,

participate in the Test Integration Working Group (TIWG) and conduct independent evaluations in accordance with the Single Integrated Development Test Policy.

b. Conduct weapon systems effectiveness studies and trade-off analysis as tasked by the Project Manager through Director of Plans and Analysis, Headquarters, DARCOM.

11. Central DA TMDE Activity:
Support the Project Manager to assure the compatibility of test, measurement, and diagnostic equipment (TMDE) development with the DA TMDE management program and concur in the procurement and development of TMDE (AR 750-43).

12. U.S. Army Agency for Aviation Safety:
Ensure that adequate consideration is given safety throughout the life cycle of aviation survivability equipment.

13. Project Manager Training Devices:
Support for design, development and fabrication of ASE training aids and devices as required.

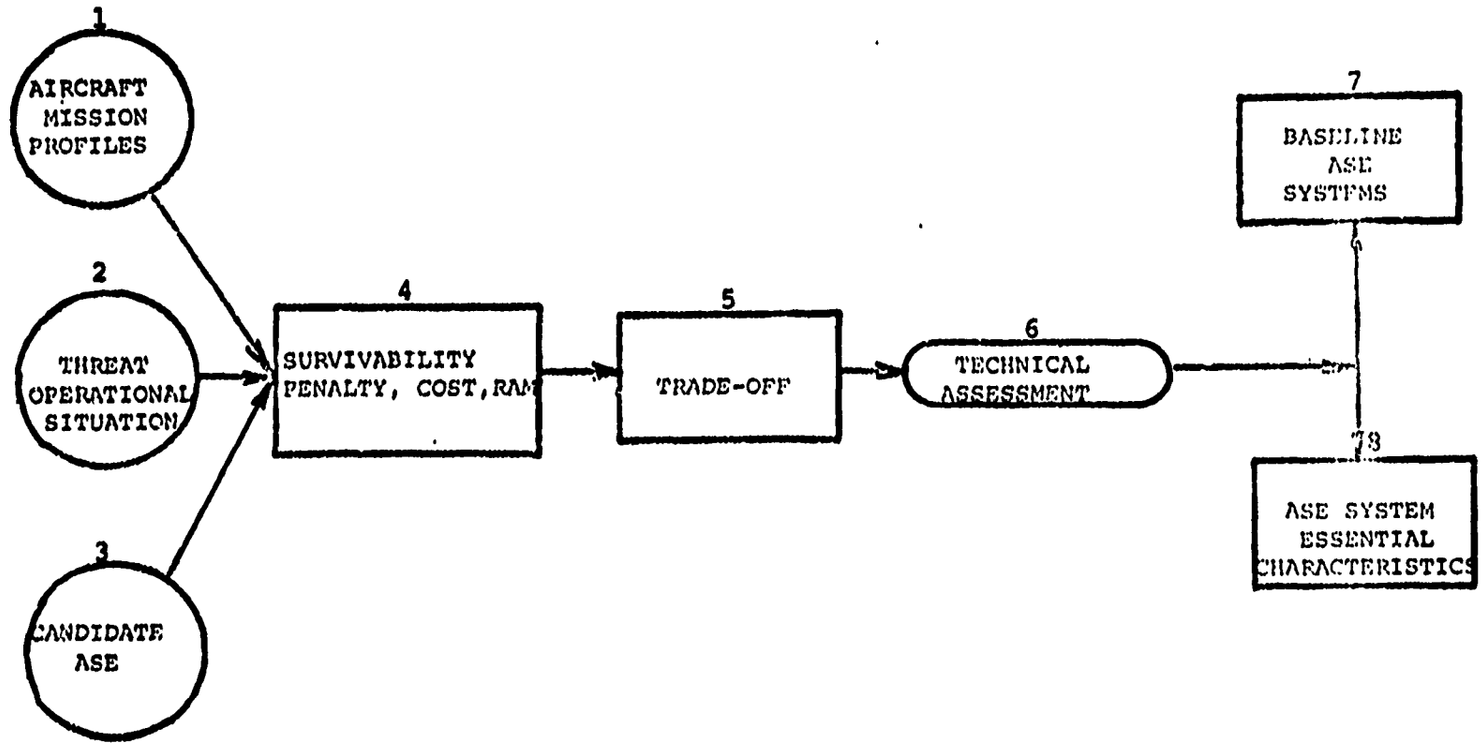
14. **Aircraft Project/Product Managers:**

Assist in developing survivability techniques and equipments.

SECTION III

Analysis of Project Management

DETERMINING ASE REQUIREMENT - The Aircraft Survivability Equipment Project Management Office (ASE PMO) utilizes a systems approach to determine the ASE requirements for U.S. Army aircraft. This approach is illustrated in Figure 1. It consists of a series of interrelated computer aided analyses jointly implemented and supported by Training and Doctrine Command (TRADOC) and DARCOM agencies. Blocks 1, 2, and 3 are imputs to the survivability, penalty, cost and RAM assessments (block 4). The aircraft mission profiles (developed in block 1 by each of the aircraft proponent schools within TRADOC) are combined with threat intelligence data and established air defense target arrays to provide detailed threat operational situations (block 2) which form the basis for the survivability analysis. The mission profiles also establish the aircraft mission performance parameters (endurance, altitude, speed aircraft configuration, etc.) which are utilized in the penalty assessment to determine the impact of ASE penalty on each aircraft mission. Each candidate ASE (block 3) and all appropriate combinations of ASE are evaluated in block 4 to determine the reduction in attrition benefit provided the aircraft, the performance penalty to the aircraft, the unit fly-away cost of the



SYSTEMS APPROACH TO ASE REQUIREMENTS

FIGURE 1

ASE, and the RAM parameters for the ASE. In block 5 (Trade-Off) penalty effectiveness and cost effectiveness are evaluated and the most penalty and cost effective combinations of ASE are identified. The results of the trade-off are imputed to block 6, Technical Assessment, where additional decision factors are considered; these include developmental risk, availability dates, modularity, maintenance and logistics. By considering the results from all previous steps (for iteration through the analysis for each theater-mission assumption) the baseline system for each aircraft is identified (block 7) and the essential characteristic of that system are established (block 8).

FULFILLING THE REQUIREMENTS - The ASE PMO is currently managing 76 projects designed to enhance the survivability capabilities of U.S. Army aircraft. Each of these projects require a separate management effort to assure an orderly progression through its life cycle. Many of the items carry an urgent priority for worldwide application and recently foreign governments have expressed a desire to purchase selected items through Foreign Military Sales. To assist the PM in the research and development efforts of these projects, the PM has been authorized by his charter to draw on the resources of all U.S. Army Laboratories.

FUNDING - It is interesting to note that none of the 76 projects being managed by the PM meet the prerequisites for DSARC review. Approval for all acquisition of ASE has been attained through In-Process Reviews chaired by the materiel development agency, DARCOM. And, as a result, funding approval for equipment R&D and acquisition is at the Service Secretary level as opposed to the OSD level.

EQUIPMENT DEVELOPMENT - The U.S. Army relies heavily on its laboratories for the development of its ASE equipment. In fact, the development of the ASE equipment by the laboratories is in most cases ready for full-scale development before it ever leaves the laboratory. Approximately 95% of the equipment currently in use by the Army was developed and prototyped in an Army laboratory and then turned over to a contractor for refinement and production. The remaining equipments were either modifications of Air Force and Navy equipment or unsolicited proposals by airframe manufacturers. The ROC's for new aircraft acquisitions have specified the requirements for aircraft survivability features. The UTTAS and AAH helicopters are the first Army helicopters to have aircraft survivability requirements written into the systems specification.

PROCUREMENT AND DEPLOYMENT - As indicated by the PM's Charter, he also has the responsibility for systems procurement and deployment. Procurement of ASE differs in no way from the

procurement of any other system. Deployment, on the other hand, is accomplished in one of three ways:

1. Installation of new equipment while aircraft are processed thru normal overhaul cycles.

2. Installation by trained contact teams traveling from unit to unit.

3. Installation by organic unit maintenance personnel.

During the deployment/installation of a suit of ASE, it is not uncommon to see all three methods.

PROJECT MANAGEMENT ORGANIZATION - An analysis of ASE project management would be incomplete without a look at the organization. The organization of the PMO is presented in Figure 2. As can be seen the organization is structured as most technically oriented PMO's. The PMO is manned as follows:

MANAGEMENT AREA	PERSONNEL ASSIGNED
Technical Management	15
Configuration Management	1
Logistics Management	6
Product Assurance Management	3
Test Management	5
Program Management	9
Procurement & Production Mgt.	3
TOTALS	42

OFFICE OF PROJECT MANAGER FOR
AIRCRAFT SURVIVABILITY EQUIPMENT

ORGANIZATION CHART

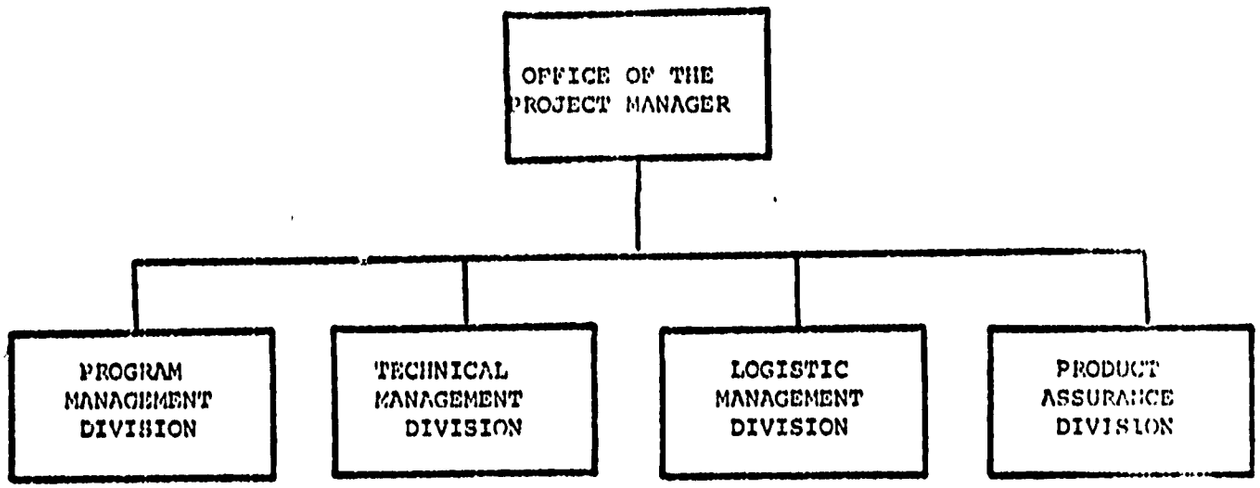


FIGURE 2

As was mentioned earlier in the report, the PMO is managing 76 separate projects. This equates to .55 personnel per project. While it is intuitively obvious the one-half person per project is inadequate, an objective analysis of the manpower requirements is beyond the scope of this report. A detailed analysis has been prepared by the Stanford Research Institute and may be obtained from the PME ASE, U.S. Army Aviation Systems Command, St. Louis, MO. 63166.

INTERFACE WITH AIR FORCE AND NAVY PROGRAMS - The Southeast Asia Conflict caused all three Services to sit back and re-evaluate the aircraft survivability programs. It also became a matter of grave concern to OSD. In September 1968, increasing concern over the unexpectedly numerous aircraft combat losses in the Southeast Asia Conflict caused the Director of Defense Research and Engineering, Dr. Foster, to establish a focal point in his office for aircraft survivability matters. This office approved and provided funding for many projects that were instituted by the individual Services to find ways to enhance the survivability of the weapons systems that were employed in combat. Most of these projects were oriented to individual weapons systems and were conducted on a "crash" basis. Because of the urgency of the situation, only very limited efforts were made to ensure that the technology developed to reduce the vulnerability of one weapons system was made available in generic form to managers responsible for

other systems or to the developers of new systems. As the conflict continued and total aircraft losses approached 5,000, MGEN Kucheman, DCS/R&D of the Air Staff, initiated a request to the Joint Logistics Commanders that a Joint Technical Coordinating Group for Nonnuclear Survivability be formed. The proposed joint group would serve to bring the best engineering talent in all of the Armed Services to bear on critical aircraft survivability problems; could serve as a repository for state-of-the-art technology developed to enhance the survivability of individual weapons systems; and would be a mechanism to promote the exchange of this technology between the Services and industry. MGEN Kucheman's request was approved by the Joint Logistics Commanders and on 25 June 1971 the Charter for the Joint Technical Coordinating Group on Aircraft Survivability (JTCG/AS) was signed. The purpose of the JTCG/AS as stated in the Charter is to: (a) implement interservice efforts to reduce the vulnerability of aeronautical systems in a nonnuclear threat environment, (b) coordinate research and advanced development efforts which contribute to the reduction of aeronautical systems vulnerability, and (c) maintain close liaison with service levels to ensure that all survivability research and development data and systems criteria are made available to the developers of new aircraft. The Study Plan which established the method of operation, organization and tasking of the JTCG/AS was approved by the Joint Secretariat on 1 November 1971. Organizational efforts were begun

immediately and the tasks in the Study Plan were translated into work projects to be performed by the members of JTCG/AS subgroups in their parent organizations' facilities. To aid in overcoming some of the start-up problems of a complex multi-disciplinary multi-service program, GEN Starbird, who as DDR&E Deputy Director for Test and Evaluation had become the focal point for aircraft survivability matters, provided funding for the initial three years of the joint aircraft survivability program. The first three year program, titled the Test and Evaluation, Aircraft Survivability (TEAS) program, was prepared by the JTCG/AS and staffed through the Army, Navy and Air Force Laboratories to ensure that it avoided duplication of any of the ongoing R&D work and that it addressed legitimate voids in technology and analysis and assessment capabilities. The Joint Logistics Commanders approved the plan and the funding arrangement and in January 1973 funds were received to begin work. A total of $10.0M was provided by DDT&E for the FY-73 thru FY-75 programs. A sizeable contribution in the form of management and engineering personnel and use of R&D facilities was made by the Joint Logistics Commanders in support of the TEAS program and a full-time four man staff comprised of one 0-5 level officer from each of the participating commands was formed to manage the program and effect the necessary coordination between the commands. Based upon the accomplishments of the initial three year program and the recognized need for

continued development of the aircraft survivability technology base against an expanding array of threat weapons, the Joint Logistics Commanders, in March of 1974, agreed to establish program elements in each Service to continue financing of the joint aircraft survivability program in the FY-76 thru FY-80 period. The initial three year program demonstrated conclusively that the JTCG/AS was an effective mechanism for avoiding duplicative R&D efforts between the commands and for identifying and applying the best talent available to those technology voids that were of high interest to all of the commands. Thus, the JTCG/AS program has become the primary interface between the Army and the other Services.

SECTION IV

Summary

Project management of Army aircraft survivability equipment is a formidable task. The management of 76 separate projects, by one project management office, must certainly be the exception rather than the rule. The Project Manager's Charter plays a vital part in the successful management realized by this PMO, and underscores its importance to the influence exerted by the PM. Another key element in the success of this PMO is the complete cooperation of the Service laboratories under the influence of the PM. Without it, the successful management of such a multitude of projects would be impossible with the limited staff available to the Project Manager. It also points out the importance of thorough and detailed planning. This is an example of a "real world" situation-- limited manpower resources, limited funding, detailed planning and analysis, maximum degree of coordination, and maximum utilization of supporting agencies.

APPENDIX A

DEPARTMENT OF THE ARMY
PRODUCT MANAGER, AIRCRAFT SURVIVABILITY EQUIPMENT, AMC
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AMCPM-ASE

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COLONEL, FA
Project Manager for
Aircraft Survivability Equipment

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AMCPM-ASE 8 JAN 1976

SUBJECT: Project Charter - Aircraft Survivability Equipment (ASE)

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MULTI-SERVICE COMMUNICATIONS SYSTEMS
NAVIGATION CONTROL SYSTEMS
REMOTELY MONITORED BATTLEFIELD SENSOR SYSTEM
SINGLE CHANNEL GROUND AND AIRBORNE RADIO SUBSYSTEM
ARMY CONTAINER ORIENTED DISTRIBUTION SYSTEM DEVELOPMENT
PAVECE
DRAGON
HAWK
HELLFIRE MISSILE SYSTEM
HIGH ENERGY LASER SYSTEM
KUWAIT
LANCE
PERSHING
PRECISION LASER DESIGNATORS
2.75" ROCKET SYSTEM
STINGER
TOW
US ROLAND

PROJECT MANAGER CHARTER

AIRCRAFT SURVIVABILITY EQUIPMENT

I. DESIGNATION OF PROJECT MANAGER

Colonel Jack L. Keaton is designated Department of the Army Project Manager for Aircraft Survivability Equipment (ASE) effective this date. Colonel Keaton assumed project responsibility as Product Manager, ASE, on 12 August 1974. The Project Manager reports to the Commanding General, US Army Aviation Systems Command (AVSCOM). This charter supersedes the ASE Product Manager Charter approved by the Commanding General, US Army Materiel Command (AMC), 27 April 1973. It will be reviewed annually on its anniversary date by the Project Manager to ensure currency and adequacy.

II. MISSION

The Project Manager is responsible for the project management of Aircraft Survivability Equipment, consisting of protection against infrared, radar, and optically guided and/or directed weapons systems, in accordance with DOD Directive 5000.1, AR 1000.1, AR 70-17, AMCR 11-16 and other pertinent regulations. Program objectives are to provide: self protection for the current Army aircraft fleet on the modern battlefield; contingency protection equipment and plans as required; vulnerability analysis and development of survivability techniques and equipment for aircraft Project, Product, and Weapon System Managers; and a viable technical data base within the AMC to interface with future aircraft development programs.

III. AUTHORITY AND RESPONSIBILITY

The Project Manager will carry the full line authority of the Commanding General, AMC, as delegated to the Commanding General, AVSCOM, for the centralized management of the ASE project and is responsible for:

A. Planning, directing and controlling the allocation and utilization of all resources authorized for execution of the approved project.

B. Assuring the accomplishment of development, initial procurement, production, distribution and integrated logistic support to accomplish project objectives.

C. Achieving the technical performance objectives of the project on schedule and at the lowest practicable cost. Cost parameters shall be established which consider cost of acquisition and ownership. Traceability of estimates and costing factors, including those for economic escalation, shall be maintained.

D. Accomplishing practical trade-offs between system capability, cost and schedule within the bands of performance of the materiel requirements documents. Trade-off decisions will give full consideration to the effect on system support effectiveness and integrated logistics support resource elements.

E. Assuring that planning is accomplished and that, except as otherwise directed, the execution of the project conforms to the plans, including implementation by the organizations responsible for the complementary functions of integrated logistic support, product assurance and operational testing, and activation or deployment of the systems and related equipment.

F. Assuring appropriate utilization of the AMC corporate and commodity laboratories as well as other government and private industrial facilities in the solution of project technical problems. The Project Manager has complete freedom of selection of source of technical support within the guidelines of DOD and DA procurement policies and procedures.

G. Assuring that all major decisions are supported by a comprehensive Decision Risk Analysis (DRA).

H. Providing vulnerability analysis and developing survivability techniques and equipment for the aircraft Project, Product, and Weapon System Managers.

I. Assuring that foreign sales customers are not provided information and/or sensitive technology not specifically approved for release by the appropriate Army authorities and included in the approved FMS cases. Engineering change proposals and product improvement programs involving ECCM devices or other sensitive components to reduce system countermeasure vulnerability are to be specifically approved by the appropriate Army authorities prior to disclosure to or discussion with foreign sales customers.

Paragraph VII.B. identifies offices and organizations within AMC which are responsible to the Project Manager for the execution of specifically assigned project tasks and other participating organizations which support the Project Manager in accordance with DOD and DA directives and regulations.

IV. ASSIGNED ARMY RDTE PROJECTS AND TASKS

The Project Manager is responsible for the following Army RDTE projects and tasks:

Element Code	DA Project/Task	Title
6.32.08.A	1F163208DB5203	Aircraft Survivability Concepts
6.37.11.A	1S763711D653	AEWSP Equipment
6.42.09.A	1F764209DC5204	Aircraft Survivability Equipment
6.47.11.A	1S764711D665	AEWSP System

V. ASSIGNED AIRCRAFT PROCUREMENT, ARMY (APA) PROGRAM ELEMENTS

A. The Project Manager, in coordination with the respective aircraft managers and AMC major subordinate commands, is responsible for the overall management direction of the procurement programs related to the survivability equipments in Section IV above, including product improvement and initial production facilities as required. Resources will be identified to the maximum extent practicable under the respective aircraft procurement program.

B. Coordinating other customer procurements as required, including Foreign Military Sales and co-production, as applicable, and for overseeing the planning and execution functions of the responsible National Maintenance Point (NMP) and National Inventory Control Point (NICP) with respect to the ASE program.

C. Operation and Maintenance, (OMA) and Military Construction, Army program funds applicable to aircraft survivability equipment.

D. Other program tasks or items as assigned.

VI. CONTRACTOR PERFORMANCE MEASUREMENT

The Project Manager is specifically responsible for establishing and maintaining a system for contractor performance measurement in the areas of cost, schedule, and technical performance. As part of his management of the project, he will:

A. Continually monitor and analyze the variances between the amount of work planned and that accomplished; and between the amount of work accomplished and actual costs. Should the provisions

of DODI 7000.2 (Performance Measurement of Selected Acquisition) be or become applicable to this program, data generated by this requirement and called for on the Contract Data Requirements List (DD Form 1423) will be used for contractor performance measurements. Otherwise, he will establish some other techniques which will enable him to perform as effectively as practicable the required variance analysis. As the result of his analysis of contractor performance, the Project Manager will identify potential or incipient problem areas and will develop and define alternatives, and depending upon the authority threshold, he will take or recommend actions to overcome the problems with minimum adverse effect upon the program.

B. Ensure that his project meets performance objectives stated in requirements documents. He will maintain continued surveillance of technical characteristics to determine and correct substandard performance.

VII. INTERFACE AND PARTICIPATING ORGANIZATIONS

A. Interface Organizations:

1. Office of the Secretary of Defense
2. Office of the Joint Chiefs of Staff
3. Defense Intelligence Agency
4. Department of the Army
5. Department of the Navy
6. Department of the Air Force
7. US Marine Corps
8. Defense Supply Agency
9. US Army Forces Command
10. Defense Contractor Administration Services
11. Department of Health, Education, and Welfare
12. US Energy Research and Development Agency
13. Department of Transportation
14. US Army Security Agency
15. US Army Overseas Commanders
16. NATO and other foreign Governments as ed.

B. Participating Organizations:

1. US Army Aviation Systems Command:

Provide administrative, ADP, cost analysis, logistical, procurement, maintenance, product assurance, distribution, engineering, and research and development support for the Project Manager as prescribed by AMC and AVSCOM regulations.

2. US Army Training and Doctrine Command:

a. Participate in: program reviews; preparation, revision, and update of development plan; development of training requirements; Requirements Control Boards; development of training device requirements; operational tests; guidance regarding changes to materiel development trade-offs; and request for proposal (RFP) reviews involving advanced development (AD), engineering development (ED), and producibility, engineering and planning (PEP) contracts.

b. Develop: deployment doctrine, employment concepts, Field Manuals (FM), Basis of Issue (BOI), Cost and Operational Effectiveness Analysis (COEA), and Tables of Organization and Equipment (TOE).

c. Perform operator and maintenance personnel training.

3. US Army Electronics Command:

Provide support in all functional areas in accordance with provisions of the Joint Responsibility Agreement between the Project Manager ASE and USA ECOM.

4. US Army Missile Command:

Provide required ASE functional support in accordance with DA and AMC regulations, policies, and procedures.

5. US Army Armament Command:

Design, fabrication, evaluation, and delivery of associated ASE devices as required, and development, system integration, acquisition, product assurance, and support for ASE as required.

6. US Army Test and Evaluation Command:

Conduct governmental development tests deemed necessary by the Project Manager, provide technical evaluation of all development tests, prepare de. led test plans as required, and assist and advise

in preparation of development test requirements, methods and procedures for other than governmental testing.

7. AMC Laboratories, Agencies and Subordinate Activities:

Provide support within assigned mission areas as required by AMC regulations.

8. US Army Operational Test and Evaluation Agency:

Program and conduct operational test and evaluation of assigned project systems.

9. US Army Logistics Evaluation Agency:

Participate in review of RDTE efforts for logistical implications and the adequacy of integrated logistic support planning.

10. US Army Materiel Systems Analysis Activity:

a. Prepare the Independent Evaluation Plan, design the necessary development tests, participate in the Test Integration Working Group (TIWG) and conduct independent evaluations in accordance with the Single Integrated Development Test Policy.

b. Conduct weapon systems effectiveness studies and trade-off analysis as tasked by the Project Manager through Director of Plans and Analysis, Headquarters, AMC.

11. Central DA TMDE Activity:

Support the Project Manager to assure the compatibility of test, measurement, and diagnostic equipment (TMDE) development with the DA TMDE management program and concur in the procurement and development of TMDE (AR 750-43).

12. US Army Agency for Aviation Safety:

Ensure that adequate consideration is given safety throughout the life cycle of aviation survivability equipment.

13. Project Manager Training Devices:

Support for design, development and fabrication of ASE training aids and devices as required.

14. Aircraft Project/Product Managers:

Assist in developing survivability techniques and equipments.

15. Contractors:

Provide hardware research, development, and production efforts as required by the Project Manager.

VIII. COMMUNICATION CHANNELS

A. Direct communication is authorized between all participants involved in implementation of the approved project to assure timely and effective direction and interchange of information between participants.

B. The Project Manager has a direct channel of communication to the Chief of Staff and to the Secretary of the Army and the Commanding General, AMC, should any of the participating organizations fail to respond to project requirements in any of the several management areas.

C. Prior to communicating with the Office of the Secretary of the Army, Office of the Chief of Staff, or interface or participating agencies not part of DA, the Project Manager will in order to ensure coordination and assistance apprise the DASC or appropriate Army staff agency of the nature of the communication.

IX. RESOURCE CONTROL

A. Army resources to accomplish the above responsibilities will be provided directly to the Project Manager after administrative processing through Headquarters, AMC, and Headquarters, AVSCOM. The Project Manager will, in turn, provide the necessary monetary resources to participating organizations for support provided in accordance with applicable regulations and policies. Other departmental resources pertinent to assigned missions will be provided directly to the Project Manager by Military Interdepartmental Purchase Request (MIPR).

B. The staff of the Project Manager is the source of personnel to perform management functions in the areas of personnel and training management, program management, cost analysis, procurement and production, systems engineering, configuration management, value engineering, product assurance and test, human factors engineering, producibility engineering and planning, and integrated logistics support management.

C. The Project Manager is responsible for cost control of his project, and he is specifically responsible to ensure that the procurement cost is minimized through cost control, change control, contractual enforcement, and contractor motivation. In the execution

this responsibility he will maintain continual surveillance of the variance between planned cost of the work performed and actual cost for that work to detect and control incipient cost growth, and he will ensure that each contract change is analyzed for life cycle cost impact prior to execution.

X. LOCATION AND SUPPORT

The Project Manager's Office is located at HQ, AVSCOM, St. Louis, Missouri, with necessary facilities and administrative support being provided by that organization. Field offices may be created by the Project Manager as required without change of charter with necessary facilities and administrative support being provided by the command/activity where established.

XI. TRANSITION

A. Current plans call for the phase-out of the project in FY 85.

B. Six months prior to phase-out, a transition plan will be negotiated with the US Army Aviation Systems Command, US Army Electronics Command, and US Army Armament Command to identify the specific functional elements that will assume responsibility for support of the distributed materiel and the appropriate maintenance support.

XII. SPECIAL EXEMPTIONS

None

XIII. SPECIAL DELEGATIONS

None

APPROVED Martin R. Hoffmann DATE 16 DEC 1975

Martin R. Hoffmann
Secretary of the Army

LIST OF REFERENCES

1. Survivability, U.S. Army Materiel Development and Readiness Command Regulation 70-3, 17 February 1976.

2. Project Manager Charter for Aircraft Survivability Equipment, Department of the Army, 8 January 1976.

3. Aircraft Survivability, U.S. Army Aviation Systems Command Regulation 70-6, 12 November 1975.

4. Aircraft Nonnuclear Survivability/Vulnerability Terms, JTCG/AS-74-D-002, December 1974.

5. Joint Technical Coordinating Group on Aircraft Survivability Charter, Joint Logistics Commanders, 25 June 1971.